

SANsurfer iSCSI HBA CLI

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1 Package Contents

The SANsurfer iSCSI HBA CLI (also referred to in this document as **iscli**) package contains the files listed in the following table.

File Name	Description
Windows	
iscli-<version>-win.msi	Executable installer package
Linux	
iscli-<version>_linux_<arch>.install.tar.gz	Package file
iscli.dkms.install.sh	Install script
iscli-<version>_<arch>.rpm	Red Hat Package Manager (RPM) installer package file

2 Requirements

This section defines the following minimum requirements:

- [2.1 Hardware Requirements](#)
- [2.2 Software Requirements](#)

2.1 Hardware Requirements

SANsurfer iSCSI HBA CLI requires the following minimum hardware:

- QLogic 4000 Series iSCSI Adapter
- Single- or multi-processor server or workstation
- Pentium II class 300MHz, 64MB RAM, 1MB disk space

2.2 Software Requirements

SANsurfer iSCSI HBA CLI requires the following minimum software:

- QLogic 4000 Series Adapter drivers

3 OS Support

SANsurfer iSCSI HBA CLI runs on the following OS platforms:

Operating Systems		
Windows OS Name	OS Type	Hardware Platform
Windows Server 2008	32-bit	x86, AMD64
Windows Server 2008	64-bit	AMD64, Intel 64
Linux OS Name	OS Type	Hardware Platform
RHEL AS and ES 6.0	32-bit	x86
RHEL AS and ES 6.0	64-bit	Intel 64, AMD64
RHEL AS and ES 5.5 and 5.6	32-bit	x86
RHEL AS and ES 5.5 and 5.6	64-bit	Intel 64, AMD64
Novell SLES 11 SP1	32-bit	x86
Novell SLES 11 SP1	64-bit	Intel 64, AMD64
Novell SLES 10 SP3 and SP4	32-bit	x86
Novell SLES 10 SP3 and SP4	64-bit	Intel 64, AMD64

NOTE: For specific OS service packs (SPs) and updates, refer to the descriptions where this software version is posted on the QLogic Web site:

<http://driverdownloads.qlogic.com>

4 Supported Features

The SANsurfer iSCSI HBA CLI (iscli) function set closely mirrors the functionality provided in the SANsurfer iSCSI HBA Manager (GUI) utility. You can use iscli as an alternative to the GUI to view, configure, and diagnose the 4000 Series iSCSI Adapters.

NOTE: For detailed user information, syntax, and command options, refer to the *SANsurfer iSCSI HBA CLI User's Guide*.

The following describes the functions you can perform using SANsurfer iSCSI HBA CLI:

■ **Asset Management:**

- ☐ View information about attached iSCSI Adapters.
- ☐ View information about iSCSI devices and LUNs connected to the iSCSI Adapters.
- ☐ Save host configuration to a text file.
- ☐ View vital product data (VPD).
- ☐ Clone all or parts of a pre-saved adapter configuration for adapter replacement, quick configuration duplication, or to ensure consistent configurations.
- ☐ Extend GUI to import adapter port configuration to all or multiple hosts.

■ **Configuration Management:**

- ☐ Configure QLogic iSCSI Adapters, network, and iSCSI parameters.
- ☐ Configure connections to iSCSI targets.
- ☐ View target-negotiated parameters.
- ☐ Specify ASCII secrets.
- ☐ Display LUN properties.
- ☐ Update firmware.
- ☐ Update BIOS, Forth Code (FCode), and ROM.
- ☐ Restore firmware factory default settings.
- ☐ Restore factory defaults using comprehensive feature.
- ☐ Configure virtual local area network (VLAN).
- ☐ Configure zero interrupt operation (ZIO).
- ☐ Update BIOS and FCode boot targets.
- ☐ Update iSCSI boot configuration (disable, manual, DHCP).
- ☐ Configure IPv6 network.
- ☐ Support SNIA iSCSI Management API (IMA) for all OSs.
- ☐ Support target redirection.
- ☐ Update network configuration without card reset.
- ☐ Support DHCP boot path.
- ☐ Display address resolution protocol (ARP) log.
- ☐ Display and log into multiple Internet simple name service (iSNS) target portals to the same target.
- ☐ Retrieve and display all discovered target portals from a Send Target discovery.
- ☐ Easily duplicate target portal connections to a target for multiple connections.
- ☐ Select which target portals to log into from a discovered targets list acquired from Send Target discovery and iSNS discovery.

■ **Statistics:**

- ☐ Available for each iSCSI Adapter.

■ **Advanced Diagnostics:**

- ☐ Ping a target to verify connectivity between adapter port and a target.
- ☐ Perform read/write buffer tests.
- ☐ Perform internal loopback tests.
- ☐ Perform external loopback tests.
- ☐ Generate firmware log dump (Type 1=firmware Flash and NVRAM).

■ **Adapter State and Target Session Connection State:**

- ☐ View QLogic iSCSI Adapters and their states.
- ☐ View target connections and their states.

■ **Driver Installation:**

- ☐ Available for Windows only.

■ **Trace Capability:**

- ☐ Set trace levels by parameters in configuration file (`iscli.cfg`).

5 Using SANsurfer iSCSI HBA CLI

This section provides the following information:

- [5.1 Installing SANsurfer iSCSI HBA CLI](#)
- [5.2 Unattended SANsurfer iSCSI HBA CLI](#)
- [5.3 Removing SANsurfer iSCSI HBA CLI](#)

5.1 Installing SANsurfer iSCSI HBA CLI

SANsurfer iSCSI HBA CLI is packaged by operating system: one package for Windows and one package for IA32 Linux (2.4.x kernel or 2.6.x kernel).

The install package name is:

```
iscli-AA.BB.CC-DD_<os type>_<subtype>.<installtype>
```

where:

AA.BB.CC-DD = version number

<os type> = win or linux

<subtype> = i386 (Linux only; the Windows install package does not have a subtype)

<installtype> = msi for Windows or rpm for Linux

The file extensions are as follows:

- Windows: .msi
- Linux: .install.tar.gz

For example, a Linux package file name is:

```
iscli-1.1.00-12_linux_i386.install.tar.gz
```

To install the package, follow the procedure for your operating system:

- [5.1.1 Windows](#)
- [5.1.2 Linux](#)

5.1.1 Windows

For packages prior to 1.1.00.06:

Run the self-extracting archive, `iscli-AA.BB.CC-DD_win.exe`. Follow the prompts in the install wizard. This adds the install path to the environment variables, but does not affect it until you either restart the system or apply the environment variables property list.

For packages 1.1.00.06 and newer:

To view the MSI install command summary, issue the following command without any parameters:

```
msiexec
```

Use one of the following methods to install the package:

- To start an interactive installation, issue one of the following commands:

```
SANsurferiCLI.msi (with no parameters)
```

```
msiexec /i SANsurferiCLI.msi
```

- To perform a silent installation (without displaying any errors), issue the following command:

```
SANsurferiCLI.msi /q
```
- To display only a progress bar with minimal interaction and no error messages, issue the following command:

```
SANsurferiCLI.msi /passive
```
- To install the utility in a specific directory, use the full file path names:

```
SANsurferiCLI.msi /q INSTALLDIR=directory
```
- To overwrite any InstallAnywhere versions of the agent without asking for confirmation, issue the following command:

```
SANsurferiCLI.msi /i FORCEINSTALL=TRUE
```

5.1.2 Linux

Unzip and untar the SANsurfer iSCSI HBA CLI gzipped tar bundle, and then execute the installation script by issuing the following commands:

```
tar -xvzf <iSCSI CLI gzipped tar bundle>
./iscli.dkms.install.sh install
```

The script automatically places the files in the following directory and adds the directory to the execution path:

```
/opt/QLogic_Corporation/SANsurferiCLI
```

5.2 Unattended Installation of SANsurfer iSCSI HBA CLI

To start an unattended installation, see the appropriate instructions for your operating system:

- [5.2.1 Windows](#)
- [5.2.2 Linux](#)

5.2.1 Windows

Issue the following command for unattended installation:

```
<Install Package Filename> -q
```

For example:

```
iscli_1.1.00-06_win.msi -q
```

5.2.2 Linux

Unzip and untar the iscli gzipped tar bundle by issuing the following commands:

```
tar -xvzf <iSCSI CLI gzipped tar bundle>
./iscli.dkms.install.sh install
```

5.3 Removing SANsurfer iSCSI HBA CLI

To remove SANsurfer iSCSI HBA CLI, follow the appropriate procedure for your operating system:

- [5.3.1 Windows](#)
- [5.3.2 Linux](#)

5.3.1 Windows

Use one of the following methods to remove the utility:

- Go to Add/Remove Programs in the Windows Control Panel, and then remove **SANsurferiCLI**.
- On the Windows Start menu, point to **QLogic Management Suite**, and then click **SANsurfer Uninstaller**.
- To start an interactive uninstall, issue the following command:

```
SANsurferiCLI.msi
```
- To start a passive uninstall with a confirmation dialog box and progress bar only, issue the following command:

```
msiexec /x SANsurferiCLI.msi
```
- To perform a silent installation (without any error messages), issue the following command:

```
msiexec /q /x SANsurferiCLI.msi
```

NOTE: The utility does not include an upgrade mechanism.

5.3.2 Linux

Issue one of the following commands to remove the utility:

```
rpm -e iscli-AA.BB.CC-DD (be sure to omit the rest of the name)  
./iscli.dkms.install.sh uninstall (to uninstall a prior or current version of iscli)  
./iscli.dkms.install.sh uninstall all (to uninstall iscli and also the iSCSI HBA  
input/output control [IOCTL] module)
```

NOTE: Other applications may depend on the iSCSI HBA IOCTL module.

6 Additional Notes

The following sections provide additional information about SANsurfer iSCSI HBA CLI:

- [6.1 Two-Part Utility for Windows](#)
- [6.2 CHAP Table](#)
- [6.3 iSNS Targets](#)
- [6.4 Boot Code](#)
- [6.5 Return Codes](#)
- [6.6 RHEL 6.x Requires Inbox Driver Update \(Out-of-Box Driver\)](#)
- [6.7 RHEL 6.x with the x86_x64 Architecture](#)
- [6.8 SLES 11 SP1 Error Message](#)

6.1 Two-Part Utility for Windows

The Windows version of the iscli utility consists of two parts:

- The utility program (iscli.exe)
- A support (SDMiSCSIId.dll) library

If you copy the utility to another directory, you must also copy the DLL to the same location. Note that SANsurfer iSCSI HBA Manager also uses this DLL.

WARNING: Do not copy the utility to the same directory where SANsurfer iSCSI HBA Manager is installed. Doing so may overwrite the support DLL and cause incompatibilities.

6.2 CHAP Table

The format of the CHAP table (stored on the adapter) used by versions of SANsurfer earlier than 02.05.05 are not compatible with the CLI user interface format. To convert the CHAP table to the newer format, use the chapConv utility.

NOTE: If you convert the CHAP table, you must also upgrade SANsurfer to a newer version (02.05.xx) because the new CHAP table format is not compatible with older software versions.

6.3 iSNS Targets

When discovering targets, the utility displays a maximum of 62 iSNS targets as persistent targets (target IDs 0–64). The iscli utility cannot detect iSNS targets beyond 62.

6.4 Boot Code

You can download the BIOS, which is used for remote boot, and configure it using the iscli utility. The processor and operating system platforms that BIOS works with include the following:

- Windows 2000 (SP4) Server and Advanced Server on IA32
- Windows Server 2003 (SP1/SP2/R2) on IA-32 and x64
- Windows XP Professional (SP2) on IA-32 and x64
- Red Hat Linux AS 3 (Update 9 and Update 8) on IA-32 and x64
- Red Hat Linux AS 4 (Update 7 and Update 6) on IA-32 and x64
- Red Hat Linux AS 5 (Update 3 and Update 2) on IA-32 and x64
- Novell SLES 8 (SP 4 and SP 3) on IA-32 and x64
- Novell SLES 9 (SP 3 and SP 2) on IA-32 and x64
- Novell SLES 10 on IA-32 and x64

6.5 Return Codes

This section lists and describes iSCSI CLI return codes. For full details, run SANsurfer iSCSI HBA CLI in command line mode using the `-ei` command line switch. For example:

```
iscli -ei
```

The following table shows a summary of the common return code values and their descriptions.

Value	Return Code Description
0	Success.
100	A parameter was invalid. Use the <code>iscsi -h</code> switch to display proper usage.
101	Failed to allocate memory error.
102	A call to the SDM library failed.
103	HBA instance specified is invalid.
104	Failed to open the HBA for an operation.
105	Failed to save the INITFW settings to the HBA.
108	A required parameter was missing.
109	An error occurred updating the firmware.
119	An unknown system error occurred.
152	Driver <code>zip</code> or <code>inf</code> file not found.
153	Unable to unzip driver file.
154	Unable to retrieve driver version from the driver file.
155	Unable to get info from driver file.
158	Driver update failed.
164	Invalid configuration parameter.
168	Operation not supported by this HBA model.
169	User not privileged for this operation.
170	There are no appropriate HBAs for this firmware image.
172	No HBAs detected.
173	No driver found.

NOTE: For complete return code information, refer to the *SANsurfer iSCSI HBA CLI User's Guide*.

6.6 RHEL 6.x Requires Inbox Driver Update (Out-of-Box Driver)

RHEL 6.x releases require installation of an iSCSI Linux driver update with IOCTL module support to discover and manage the iSCSI Adapters. The inbox iSCSI driver does not have the interfaces to support the SANsurfer iSCSI HBA CLI and SANsurfer iSCSI HBA Manager utilities. Download the RHEL 6.x QLogic iSCSI Linux Inbox Driver Update, SANsurfer iSCSI HBA CLI, and SANsurfer iSCSI HBA Manager from the QLogic driver downloads Web site or your respective OEM support site.

6.7 RHEL 6.x with the x86_x64 Architecture

For SANsurfer iSCSI HBA CLI to install and run correctly on Red Hat 6.x with the x86_x64 architecture, you must install, in order, additional packages as listed in the following procedure:

1. To install the system kernel version 2.6.32-59.el6.x86_64, select `RHEL6.0-20100805.0-Server-x86_64-DVD1.iso` to mount with Raritan.
2. Choose the installation with the **Basic Video driver**.
3. Select the **Basic storage device**.
4. Install the software for **software development work machines** and the following extra install compatibility libraries:
`Compat-db-4.6.21-15.el6.x86_64`
`Compat-expat1-1.95.8-8.el6.x86_64`


```
Comapt-glibc-2.5.46.2.x86_64
Compat-libgfortran-41-4.1.2-39.el6.x86_64
Compat-libstdc++-296-2.96-144.el6.x86_64
Compat-libstdc++-33-3.2.3-69.el6.x86_64
Compat-libtermcap-2.0.8.49.el6.x86_64
Compat-openldap-2.4.19_2.3.43-15.el6.x86_64
Openssl098e-0.9.8e-17.el6.x86_64
```

5. Configure the network and ensure that the iptables/firewall is disabled.
6. Install SANSurfer iSCSI HBA CLI.
7. Install the library RPMs in the following sequence:

```
libXau-1.0.5.1.el6.i686.rpm
libxcb-1.5.1el6.i686.rpm
libX11-1.3.2.el6.i686.rpm
libXext.1.1.3.2.el6.i686.rpm
libXp.1.0.0.15.1.el6.i686.rpm
```

8. Run SANSurfer iSCSI HBA CLI.

6.8 SLES 11 SP1 Error Message

In some scenarios on SLES 11 SP1, the iSCSI ports are not discovered, and the following error message is shown in the system error log:

```
FATAL: module
'/lib/modules/2.6.32.27-0.2-default/extra/qlgc-qla4xxx/qisioctl.ko'
is unsupported use --allow-unsupported
or set allow_unsupported_modules to 1 in
/etc/modprobe.d/unsupported-modules
```

To correct the error:

1. To include qisioctl as a supported module for SLES 11 SP1, add in the qla4xxx directory the Module.supported file with the following contents:

```
qla4xxx.ko external qisioctl.ko external
```

2. Rebuild the modules.
3. After loading the qla4xxx driver and before starting SANSurfer iSCSI HBA CLI, load the qisioctl module as follows:

```
modprobe qisioctl
```

NOTE: For details on building and installing the driver and IOCTL module, refer to the Linux driver *Readme* document.

7 Known Issues and Workarounds

Known issues in this release, and workarounds (if any) are listed in the following table.

Known Issue	Workaround
After installing the drivers, you must restart iscli to view adapters. Disregard the message about the need for the reboot.	None. For your information only.
When installing iscli on Linux with an iscli version that is older than 1.0.39.02, the RPM update option -U does not work correctly.	Use the options -ivh --force. For example: rpm -ivh --force iscli-1.0.39-02.ppc64.rpm

Known Issue	Workaround
On Linux 2.6 and newer kernels, you may see the warning message, <code>Error Read FW settings from HBA instance</code> if the adapter is not initialized or is unable to acquire an IP address using DHCP. This occurs when the IPv4 address is 0.0.0.0.	Set the IP address to a non-zero value.
iSCSI Adapters are not discovered on Linux systems.	<p>Ensure that SANSurfer iSCSI HBA CLI was installed with the script, and not with the RPM file. The script ensures that a key component, an IOCTL module, gets installed if it is not already installed on the system. If you used the script to install iscli and the iSCSI Adapters are still not discovered, review the installation messages to determine if there is an issue installing the IOCTL module.</p> <p>It is possible that the Linux OS on your system needs a newer version of SANSurfer iSCSI HBA CLI. Check the QLogic Web site to ensure that you are installing the latest version of iscli.</p> <p>To verify that the IOCTL module is installed and loaded, issue the following command:</p> <pre>lsmod grep qisiocli</pre>

8 Contacting Support

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

Web: <http://support.qlogic.com>

E-mail: support@qlogic.com

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